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Cancer in Alberta:
A Regional Picture 2006

Alberta Cancer Board

Cancer in Alberta: A Regional Picture

The Division of Population Health & Information of the Alberta Cancer Board presents *Cancer in Alberta: A Regional Picture 2006*. This annual report outlines cancer trends and regional rates in Alberta. It provides a synopsis of data from the Alberta Cancer Registry to provincial health professionals and planners in an effort to assist with planning and policy-setting.

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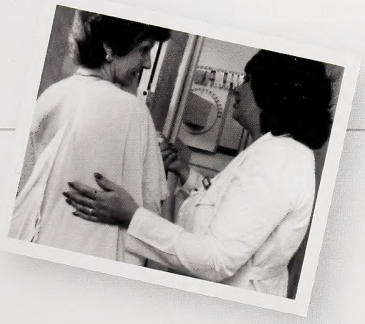
Cancer control and the Alberta Cancer Board

Research indicates that more than 50% of all cancers could be prevented or detected early enough to be successfully treated.

A diet high in vegetables and fruit, as part of a balanced lifestyle is the single most important dietary measure for preventing a wide variety of cancers.



Organized screening programs test otherwise healthy people to identify the presence of disease before symptoms occur.

This report, *Cancer in Alberta: A Regional Picture*, is prepared annually by the Alberta Cancer Board for health professionals in Alberta's health regions. It can be used as a reference document providing current data on cancer, comparisons between regional health authorities, and trends and projections for cancer.

The information presented in this report will help to illustrate the burden of cancer in Alberta. Cancer takes an emotional, physical, and psychological toll on many Albertans and their loved ones. Cancer services make up a major portion of our health care system. Cancer control is, therefore, vital; it is the Alberta Cancer Board that coordinates cancer control opportunities and provides many other specific cancer services. These services cover a broad spectrum of programs and activities from prevention and screening through to palliative care.

Accurate information on the cancer burden is an essential part of the foundation of cancer control. In Alberta, all cancer cases and deaths are captured in the Alberta Cancer Registry maintained by the Alberta Cancer Board and are used in **surveillance**[1] activities.

Public Health surveillance is defined as "the ongoing systematic collection, analysis, and interpretation of health data essential to the planning, implementation, and evaluation of public health practice, closely integrated with the timely dissemination of these data to those who need to know. The final link in the surveillance chain is the application of these data to prevention and control." [2]

The data in this report are part of this chain of knowledge. Mainly due to an aging and growing population, cancer **incidence** is continuing to increase in our province and, therefore, using this knowledge is particularly important in understanding and trying to control cancer.

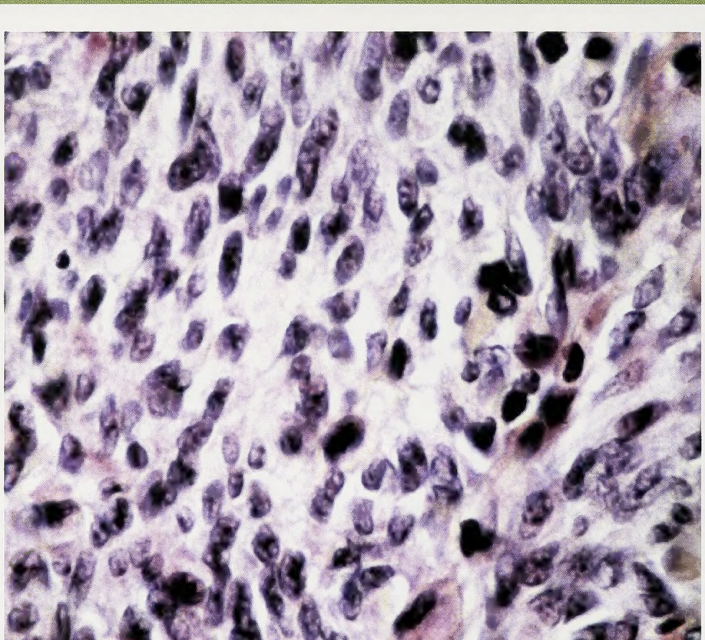
It is essential to emphasize that research indicates that more than half of all cancers could either be prevented or detected early enough to be successfully treated.[3] Prevention measures include tobacco control, increased vegetable and fruit consumption, increased physical activity, maintaining healthy body weight and sun safety measures. Organized screening programs are the best approach to detection as the cancer is more likely to be found in its early stages. In addition, treatment (including surgery, radiation and chemotherapy), along with supportive care, is also critical in controlling the burden of cancer.

In summary, the Alberta Cancer Board is working to ensure that Albertans receive the information and services they need to minimize their risks of developing cancer, increase their chances for early detection, enhance treatment and improve their quality and quantity of life. The Alberta Cancer Board's Division of Population Health & Information produces this report which can then be used as a tool in the battle for the control of cancer in Alberta.

1 In this document the terms defined in the glossary are bolded and green at their first occurrence in the text.

2 Centers for Disease Control. Comprehensive Plan for Epidemiologic Surveillance. Atlanta, GA: Centers for Disease Control, 1986.

3 Harvard Center for Cancer Prevention. Prevention of Human Cancer in "Cancer Causes and Control" Volume 8: Supplement, November 1997.



What is cancer?

Cancer is not a single disease – it is a related group of more than 200 different diseases.

For cancer to be classified as a group of diseases there must be some commonality between them.[4] What these diseases do, in fact, have in common is that they have abnormal cells within the body that are dividing and spreading without control, whereas normal cells grow and divide but produce only enough cells required to keep the body healthy. The abnormal growth rate of the cancer cells often results in a tumour.

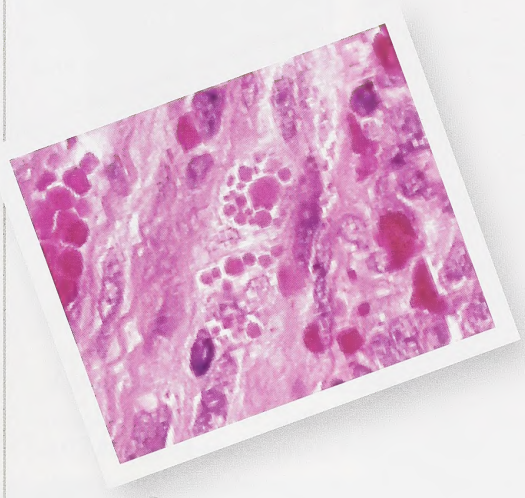
Where it is found in the body

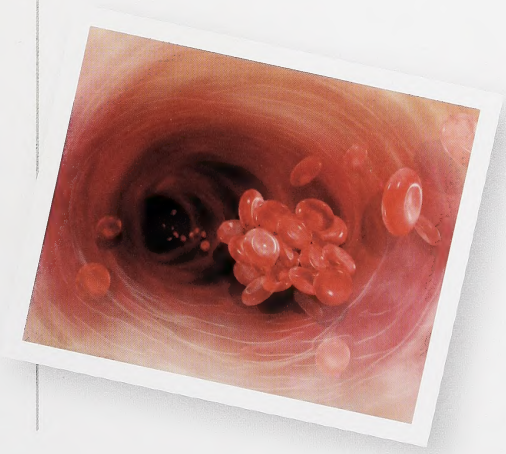
> Cancer can begin at almost any site in the body and it behaves differently depending on its point of origin.

> Cancers are most often named for the part of the body in which they originate: for example, cervical cancer begins in the cervix, and colorectal cancer starts in the colon or rectum.

> **Tumours** are also classified by the type of tissue they affect:

- o For example, **carcinoma**, the most common type of tumour, refers to tumours that occur in the cells that line the organs and cover the surface of the body;
- o Leukemia and lymphoma refer to tumours occurring in the blood (leukemia) and immune (lymphoma) systems;
- o Sarcoma refers to tumours that occur in fibrous tissue, muscle, or bone.





4 Canadian Cancer Society; Cancer Glossary; www.cancer.ca.

Malignant versus benign

When left untreated, **malignant** cancer cells can invade nearby tissue and spread through the bloodstream and **lymphatic system** to other parts of the body; this is termed **metastasis**. It is this ability of malignant tumours to invade and spread to other tissues in the body that makes cancer so deadly. In general, a tumour that is slow growing and does not spread is considered **benign**. Such tumours are generally harmless unless they affect the function of surrounding tissue.

The importance of cancer to Canadians

Cancer presents the largest burden of disease to Canadians as a leading cause of premature death. One of the frequently used measurements of premature deaths is the **potential years of life lost** (PYLL). In the analysis below, PYLL was calculated by subtracting the age at which a person dies from the age 75. Therefore, a person who dies at 45 has "lost" 30 years of life. PYLL gives a good indication of the impact of cancer on the population.

In Canada, cancer outranks all other major diseases as the number one cause of potential years of life lost for men and women. In 2002, 999,000 potential years were lost as a result of cancer, representing 32% of the PYLL resulting from all causes of death.[5] Diseases of the heart were the second leading cause. Premature death occurs more frequently in the cancers that are more common, have an earlier age of onset and a more rapid progression to mortality. The three leading cancers for causes of PYLL were lung, colorectal and prostate for men and lung, breast and colorectal cancer for women.

So, to summarize, cancer is a group of diseases which can occur at almost any site in the body and can, in fact, spread. It adversely affects the lives of many Canadians and in the following sections a more detailed picture will be presented of how it impacts Albertans in particular.

5 Canadian Cancer Society/National Cancer Institute of Canada: Cancer Statistics 2006.

The overall picture of cancer in Alberta

In this section, information is presented to give an overall picture of cancer in this province. As an introduction, the "highlights" section below puts our province in context compared with populations outside Alberta. The main highlights within Alberta and of specific cancer sites are also presented below.

Highlights

Comparisons to outside the province:

> When Alberta's overall cancer **rate** is contrasted with various populations worldwide,[6] Alberta's rate falls in the middle – similar to Canada's rate.

> Across Canada, incidence and mortality rates tend to be higher in the Eastern than the Western provinces – Alberta's rates are similar to those of the other Prairie provinces.

Within Alberta:

> In 2003, 12,571 Albertans were diagnosed with cancer and 5,192 people died from it.

> In 2006 it is projected that close to 14,000 Albertans will be diagnosed with cancer and over 5,700 will die from the disease.

> The most common cancers in Alberta in 2003 were prostate, breast, lung and colorectal. These four cancers accounted for 57% of new cancer cases and about half of cancer deaths.

> The number of new cancer cases in Alberta is expected to increase steadily to about 28,850 cases in 2030; this would account only for the increases in the age and size of Alberta's population.

> Approximately 1 in 2 Albertans will develop cancer in their lifetime and 1 in 4 will die of cancer.

> Among Albertans in the productive age group of 35–64, cancer is the leading cause of death. It causes 40% of all deaths for this age group which is *more* than cardiovascular disease, stroke, infectious diseases, and accidental injury *combined*.

Specific sites:

> Lung cancer is the most common cause of cancer death among both men (733 in 2003) and women (556 in 2003). Incidence and **mortality** rates for females have risen in the past 15 years. Male incidence and mortality rates have slowly declined over the same time period.

> Colorectal cancer is the second-leading cause of cancer death in Alberta (560 in 2003).

> Prostate cancer is the most commonly diagnosed cancer of men. It accounts for 32% of cancer incidence among men: mortality rates for prostate cancer are slowly declining.

> Breast cancer is the most commonly diagnosed cancer of women. It accounts for 30% of cancer incidence in women: mortality rates have been declining even though the incidence is increasing.

6 Regions included areas of: USA, Czech Republic, Denmark, China, UK, Singapore, Poland, Australia, Japan, Colombia, Zimbabwe, and India.

Cancer in Alberta

Figure 1[7] shows that prostate, breast, lung and colorectal cancers[8] were the most common cancers in 2003 in Alberta with a combined total of 57% of all cancers. These four cancers are shown in Figure 2 to be responsible for half of cancer deaths. A large number of less-common cancers make up the remaining number of new cancer cases and deaths.

Figure 1: New Invasive Cancers by Site, Alberta, 2003

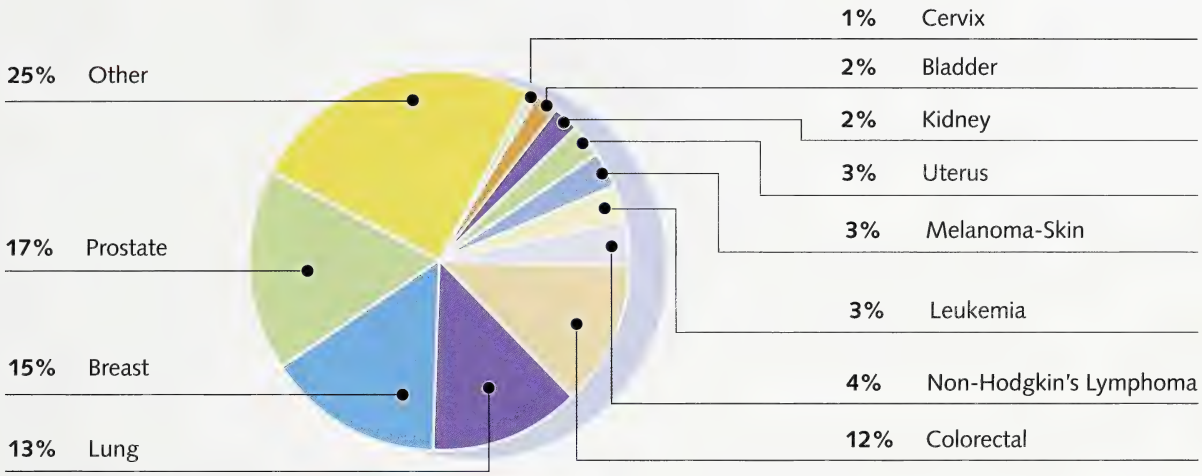
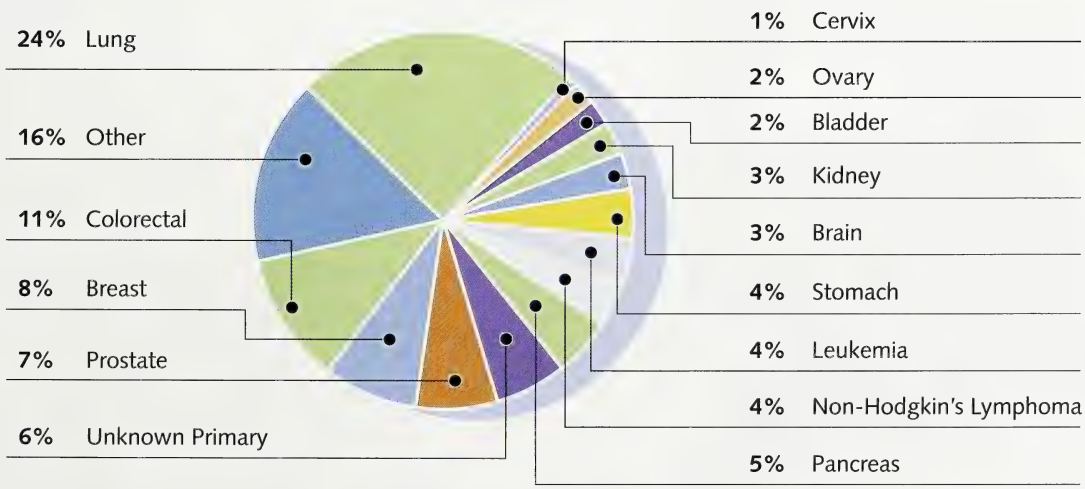


Figure 2: Cancer Deaths by Site, Alberta, 2003

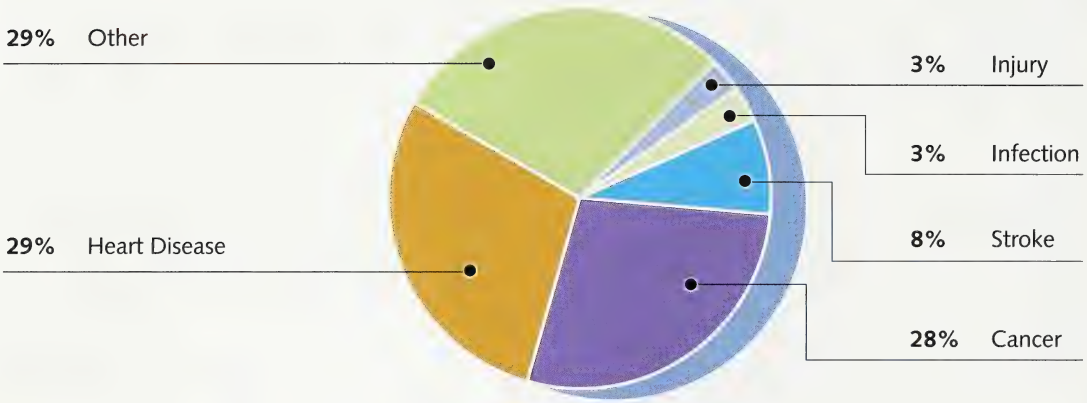


7 Incidence and mortality rates for non-melanoma skin cancer (NMSC) are not included in any of the statistics presented in this document. Although approximately 30% of the malignant cancers diagnosed among Albertans each year are NMSC, these tumours are generally not life-threatening and, therefore, rarely included in cancer registry reports.

8 In this document, the term "cancer" is used to indicate **invasive cancers** unless otherwise specified.

Some cancers are not very common but, due to their poor prognosis, they make a relatively large contribution to mortality. As illustrated in Figure 2, these include stomach, brain, and pancreatic cancers. These three cancers were responsible for 12% of the deaths in 2003 despite the fact that each of them accounted for fewer than 2% of newly diagnosed cases. Their low incidence meant that they were not individually identified in Figure 1. Lung cancer also has a poor prognosis; it accounts for 13% of new cases but fully 24% of cancer deaths.

Figure 3: All Causes of Death in Alberta, All Ages, 2002[9]

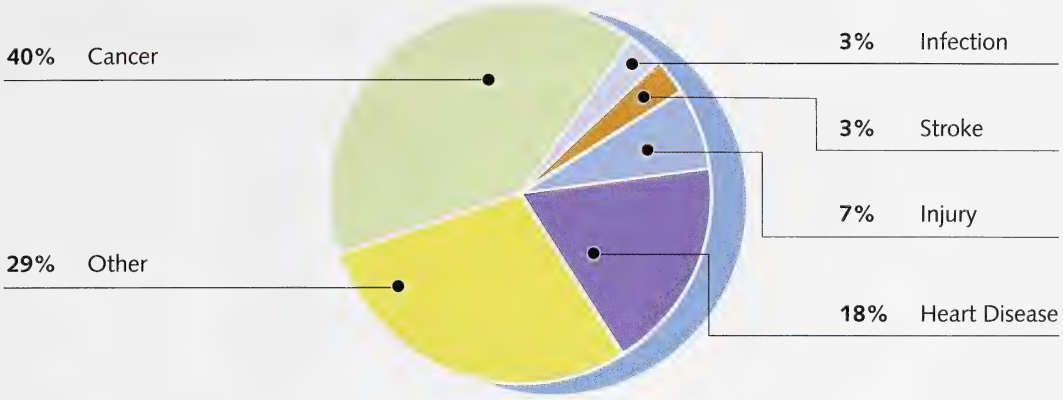


Cancer is a major issue for Albertans. When we look at all causes of death, we see in Figure 3 that 28% of deaths in Alberta for all ages in 2002 were attributable to cancer, 29% were caused by heart disease and 8% by stroke. All other causes combined accounted for the remaining 35% of all deaths. "All other causes" included injury, infection and others. So, in other words, cancer is a major cause of death in Alberta.

Our best opportunity to reduce cancer cases and deaths is through prevention – nutrition, physical activity, healthy body weight, tobacco control and sun safety.

9 Statistics from the Government of Alberta.

Figure 4: All Causes of Death in Alberta, Ages 35–64, 2002



It is important to note the fact that, among the age group of 35–64 (Figure 4), cancer is the *leading* cause of death. It accounts for 40% of all deaths for this age group. This is more than cardiovascular disease, stroke, infectious diseases, and accidental injury *combined.* This age group contributes extensively in terms of productivity in society and, therefore, the impact of cancer on this group considerably affects the wider community as well as the individuals and their families.

Cancer affects the older age group in a different way. Even though the incidence of cancer is high in this group, the mortality for other causes of death, such as cardiovascular disease, are even more specific to older age groups.

For Albertans in the most productive age group of 35–64, cancer is the leading cause of death accounting for more deaths than other major causes put together.

The challenge of cancer in Alberta

The Alberta Cancer Board is dedicated to controlling cancer, thus lessening its burden on individuals and society. It does this through prevention, screening, treatment and research.

Information about how many people have cancer and how many die from it is vital when we are looking at how immense a challenge cancer is in Alberta. So, in this section we focus on some steps to address this challenge.

The first step is to describe incidence and mortality. We will look first at incidence in the past and present and then at trends and projections of future incidence. These trends and projections are partly dependent on the aging of the population.

The next step is to include information on the likelihood of developing and dying of cancer, cancer survival, and the number of people currently living with cancer (**prevalence**). A summary report of new cancer cases and deaths for 2003, broken down by sex, age group, and cancer site is included in the appendix.

The key messages of the following sections are:

> **Incidence and mortality:** cancer incidence rates are slowly increasing, although trends do vary according to site. Mortality rates have remained fairly stable.

> **Cancer trends and projections:** cancer cases are rapidly increasing due to an aging and growing population.

> **The risk of developing and dying of cancer:** one in two Albertans will develop cancer and one in four will die of cancer.

> **Cancer survival:** survival has improved for those diagnosed with cancer in the past several years.

> **Prevalence:** the number of people living with cancer continues to *grow* each year.

Incidence and Mortality

Definitions:

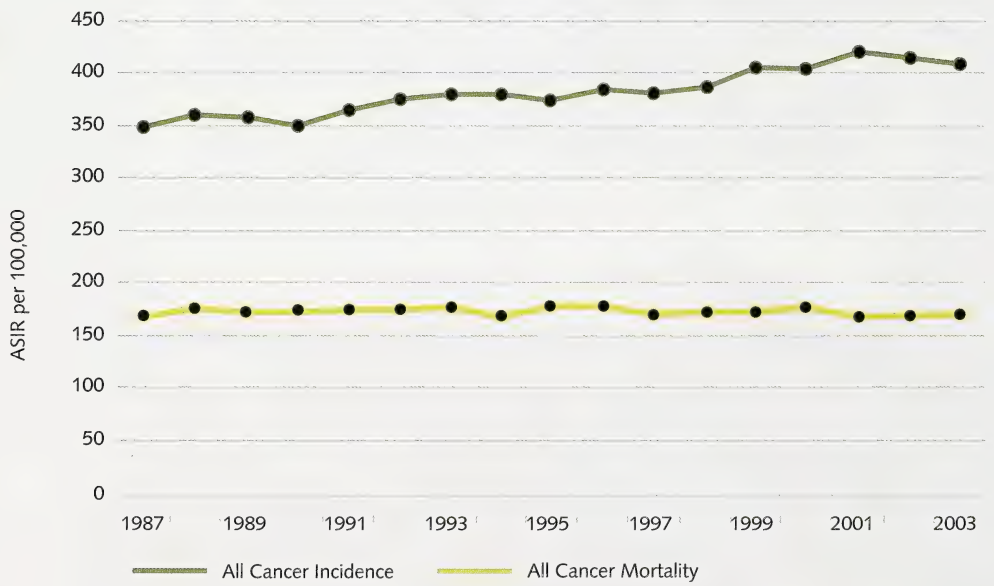
> Cancer incidence is the frequency of new cancer cases during a period of time and is, therefore, a good way to assess the impact of a disease.

> Cancer mortality is the number of deaths due to cancer during a period of time.

> In order to enable comparisons over time or between populations, **age-standardized incidence or mortality rates** are used. These are weighted averages of age-specific rates using a standard population distribution.

Incidence and mortality can both be affected by prevention, screening and research. It should be noted that there is always a lag time between the beginning of a prevention intervention and a change in incidence or mortality. If cancer is detected early, for example through a screening program, then mortality is likely to be reduced as treatment is generally more successful at the early stages. Cancer treatments also continue to improve chances of survival.

Figure 5: Age-Standardized Incidence Rates (ASIR) and Age-Standardized Mortality Rates (ASMR), Alberta (1987–2003)



In Figure 5 we can see that overall age-standardized cancer incidence rates are slowly increasing and age-standardized death rates are relatively stable.[10]

10 Population data is from Alberta Health and Wellness. Standard population used in calculation of Age-Standardized rates: 1991 Canadian standard population.

Table 1: New Cases and Number of Deaths for Invasive Cancer by Site, Alberta, 2003

Site	New Cases	Number of Deaths
Male Lung	881	733
Female Lung	730	556
Female Breast	1794	420
Prostate	2151	340
Female Colorectal	669	265
Male Colorectal	833	295

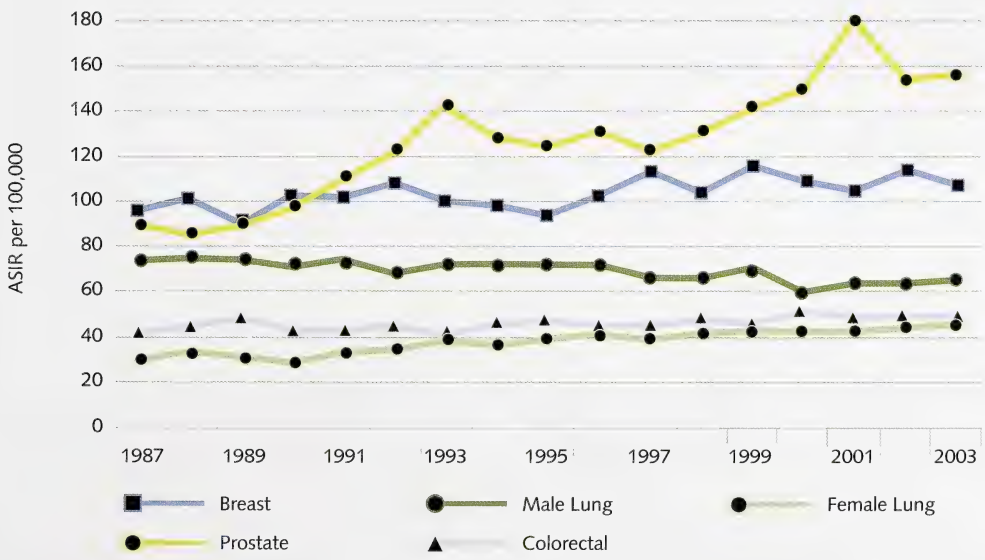
Table 1 summarizes the four most common cancers for 2003.[11] The main points to take from this table are:

> lung and breast cancer are most commonly diagnosed in females;

> lung and prostate cancer are most commonly diagnosed in males;

> lung and colorectal cancer are the most common causes of death for males and females combined.

Figure 6: Age-Standardized Incidence Rates (ASIR) by Site, Alberta (1987–2003)



11 See appendix for more detailed information.

Figure 6 shows the picture of age-standardized incidence rates over time for the four most common cancers. The rates for colorectal cancer for males and females have been combined and those for lung cancer are shown separately as trends differ by sex for this cancer. Prostate cancer rates in males and breast cancer rates in females are also included in the graph. As can be seen:

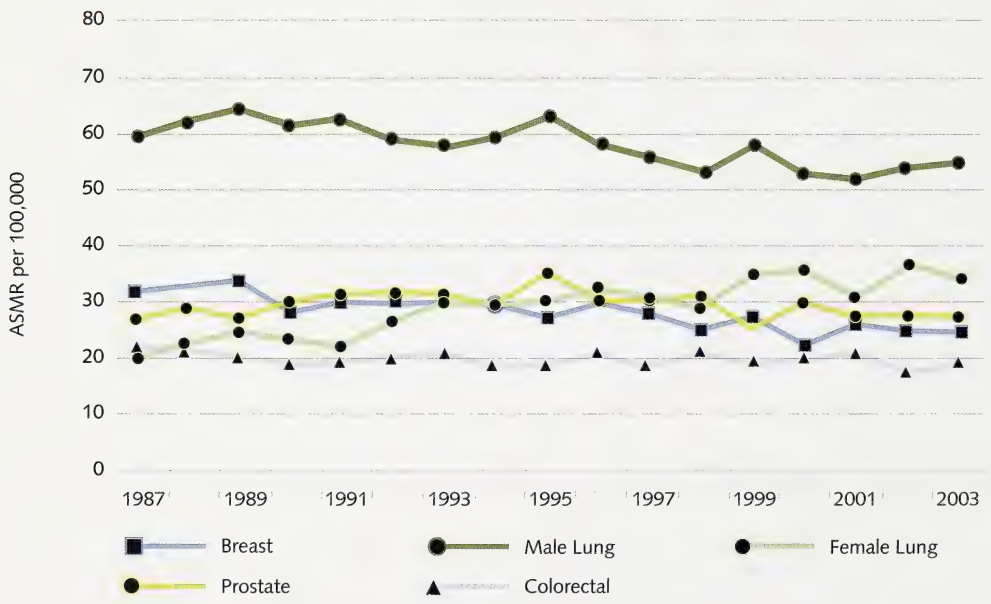
> lung cancer rates for females continue to increase;

> breast cancer rates are increasing;

> colorectal cancer rates were fairly stable; and,

> prostate cancer rates fluctuate yearly although they increased overall. This fluctuation is due to PSA (Prostate-Specific Antigen) testing which diagnoses a number of cases that may otherwise not have been detected during a man's lifetime.

Figure 7: Age-Standardized Mortality Rates (ASMR) by Site, Alberta (1987–2003)



Next we examine mortality rates. Figure 7 presents these rates for colorectal cancer for males and females combined and the lung cancer mortality rates separately for males and females as trends again differ by sex. It also includes the prostate cancer rates in males and breast cancer rates in females. It is important to note the following:

> lung cancer is the leading cause of cancer deaths for both men and women; male rates have gradually decreased since the mid 1990s while female rates have steadily increased over the past 15 years;

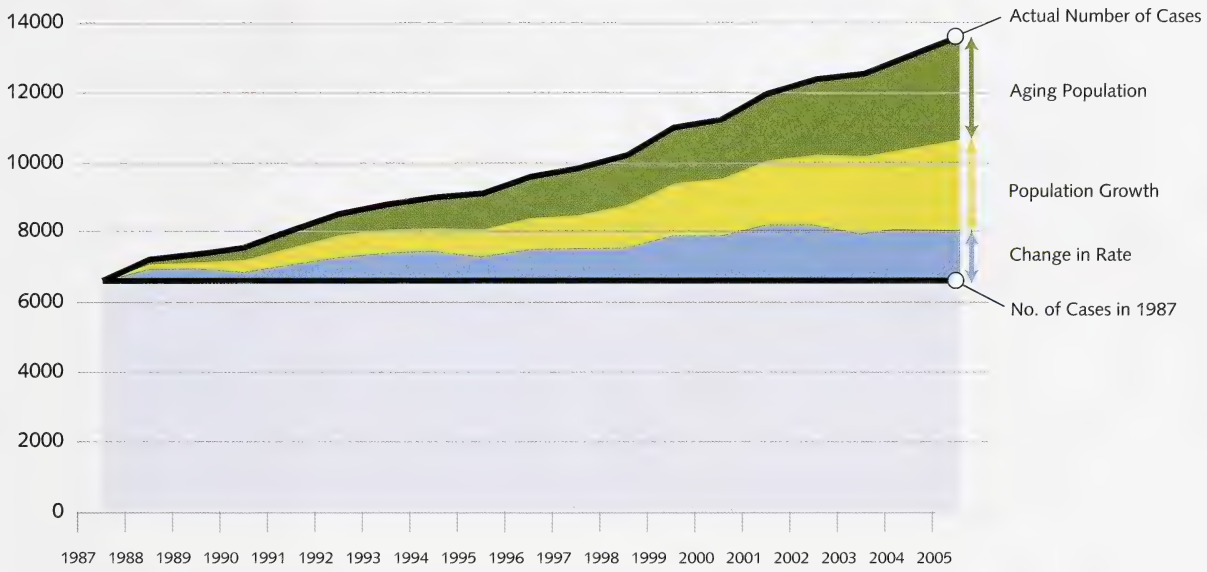
> there has been a marked decrease in breast cancer mortality due to screening and treatment efforts;

> prostate cancer mortality has decreased slightly.

Cancer Trends and Projections

The next part of the challenge is to look at cancer trends and what they may be attributed to. The following figure (Figure 8) shows the impact on trends of new cancer cases due to (1) changes in the rate of cancer, (2) population growth, and (3) aging.

Figure 8: Trends in New Cases Attributed to Cancer Rate, Population Growth, and Aging Population



In Figure 8 the bottom black line represents the number of cases that occurred in 1987.

The upper black line represents the number of new cases that actually occurred. Between these two lines, the three areas reflect the increase of cases due to the impact of rate change, population growth, and aging population.

The dark blue shaded area (lower) represents the total number of new cases that would have occurred each year if the cancer incidence rates alone had changed but the population had remained the same as in 1987.

The yellow shaded area (middle) represents the number of new cases that would have occurred each year if the population alone had grown larger but the population age distribution had remained the same as in 1987.

The green shaded area (top) represents the number of new cases due to the aging population.

The main message from this figure is that cancer cases are increasing in Alberta mainly due to population growth and an aging population. However, it must be remembered that although the aging population is an important part of the cancer picture, it is not the only factor. Cancer is a major cause of premature death as well; in the age group 35–64, cancer is the leading cause of death.

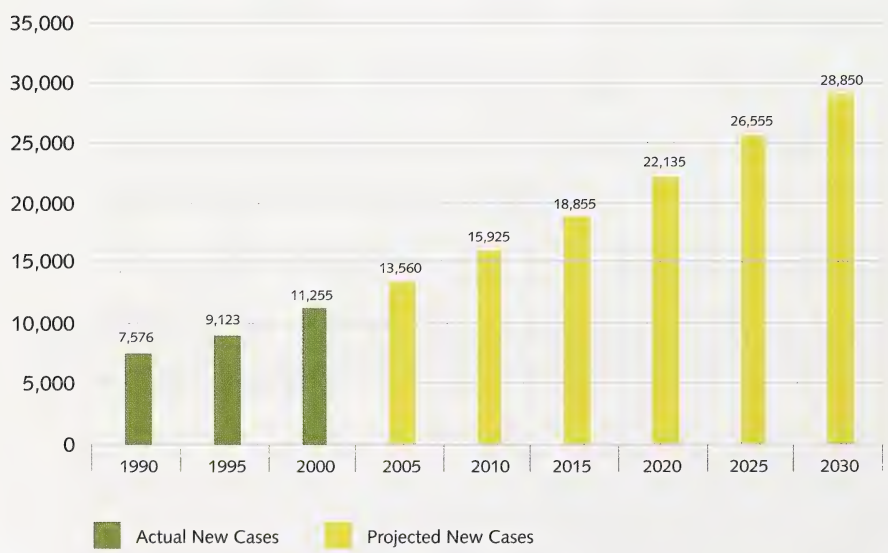
As well as looking at trends, the Alberta Cancer Board also develops cancer projections; this is partly so that the needs for future cancer care services can be predicted. The projected number of new cancer cases in Alberta for 2005–2030 is shown in Figure 9. The number of cancer cases is expected to double by 2025 to more than 25,000 cases annually if current trends continue. This projected increase is primarily a result of two factors: population growth and an aging population (see below).

A significant impact on the number of cancer cases that will occur in Alberta will come from two aspects of the population:

> Size – Our population is continually growing and is projected to increase more than 30% by 2025. Even if the risk of developing cancer does not change, the increase in population means there will be more cancer cases in the province.

> Age – Alberta's large generation of 'baby boomers' are entering an age where cancer becomes a health concern. An aging population will have a direct impact on the number of cancer cases in this province.

Figure 9: Actual and Projected Number of New Cases of Invasive Cancer, Alberta, 1990–2030



The Risk of Developing and Dying of Cancer [12]

The risk of developing and dying of cancer is another way of thinking about incidence and mortality over a lifetime as opposed to annually. The **probability of developing cancer** measures the risk of an individual developing cancer in a given age range, and is conditional on the person being cancer-free before the start of that age range. The probabilities shown below of developing and dying of cancer are averages over the entire Alberta population and should not be applied to a particular individual.

Table 2: Lifetime Probability of Developing or Dying of Cancer

	Lifetime Probability of Developing Cancer		Lifetime Probability of Dying of Cancer	
	Males	Females	Males	Females
	1 in	1 in	1 in	1 in
Any Cancer	2.1	2.4	3.9	4.5
Female Breast	–	7.8	–	29.0
Prostate	5.5	–	25.1	–
Lung	13.0	17.2	15.1	19.3
Colorectal	14.1	18.6	34.7	41.0

Table 2 shows that approximately one in two Albertans will develop cancer in their lifetime and 1 in 4 will die of cancer. As indicated in the table, the cancer site is also a factor in the probability of developing or dying of cancer. For example, a female born today in Alberta has a 1 in 8 chance of developing, and a 1 in 29 chance of dying of, breast cancer. Compared to breast cancer, the chances that a female born today will develop lung cancer are lower (1 in 17). However, the chances of dying from lung cancer are greater than for breast (1 in 19).

12 The probabilities of developing and dying of cancer have been computed using DevCan, which is software freely available from the United States' National Cancer Institute. DevCan computes age-conditional probabilities based on the cross-sectional incidence and mortality rates. The incidence rates are for the first invasive cancer, excluding non-melanoma skin cancers. This methodology accounts for competing risks and assumes that these rates remain the same in the future. Further details on the methods and algorithms used in DevCan can be found at http://srab.cancer.gov/devcan/. The Alberta data presented is based on incidence and mortality rates in 2002.

When we look at Figures 10a and 10b below, we see two main points with respect to age:

> the short-term (ten-year) risk of developing cancer continues to increase with age;

> the risk of developing cancer over the individual's remaining lifetime decreases with an increase in age because older people often die of other causes.

To give an idea of what this means in reality, at age 50, a woman has a 39% (or 1 in 2.5) risk of developing cancer during the rest of her life and a 7% (or 1 in 15) chance of developing cancer in the next ten years of her life (by age 60) as shown in figure 10a. By age 70, the risk of developing cancer during the rest of her life has decreased to 29% (or 1 in 3.4) whereas the short-term risk has increased to 15% (or 1 in 6.7).

Figure 10a: Risk of Developing Cancer Within Next Ten Years and Within Remaining Years of Life, Females

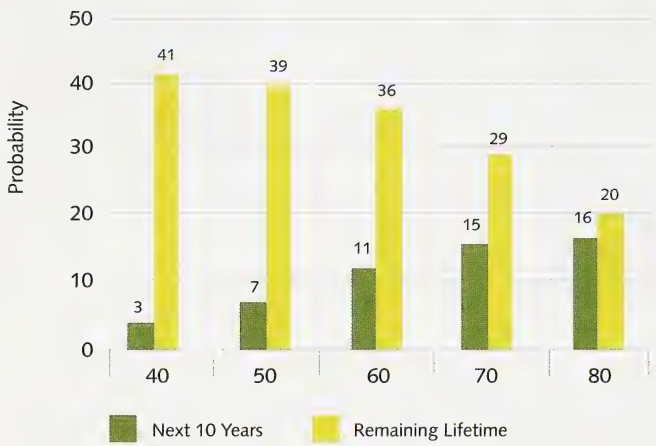
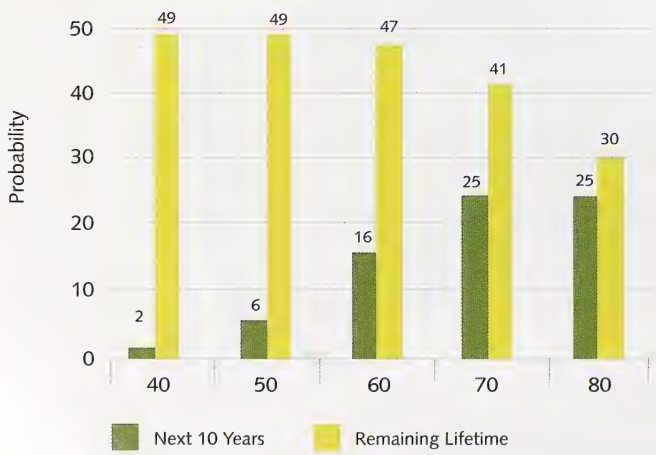


Figure 10b: Risk of Developing Cancer Within Next Ten Years and Within Remaining Years of Life, Males



Cancer Survival

Cancer survival is of particular interest for two groups:

> To cancer patients themselves as the rates give an indication of the proportion of people who will be alive at a given point after diagnosis and

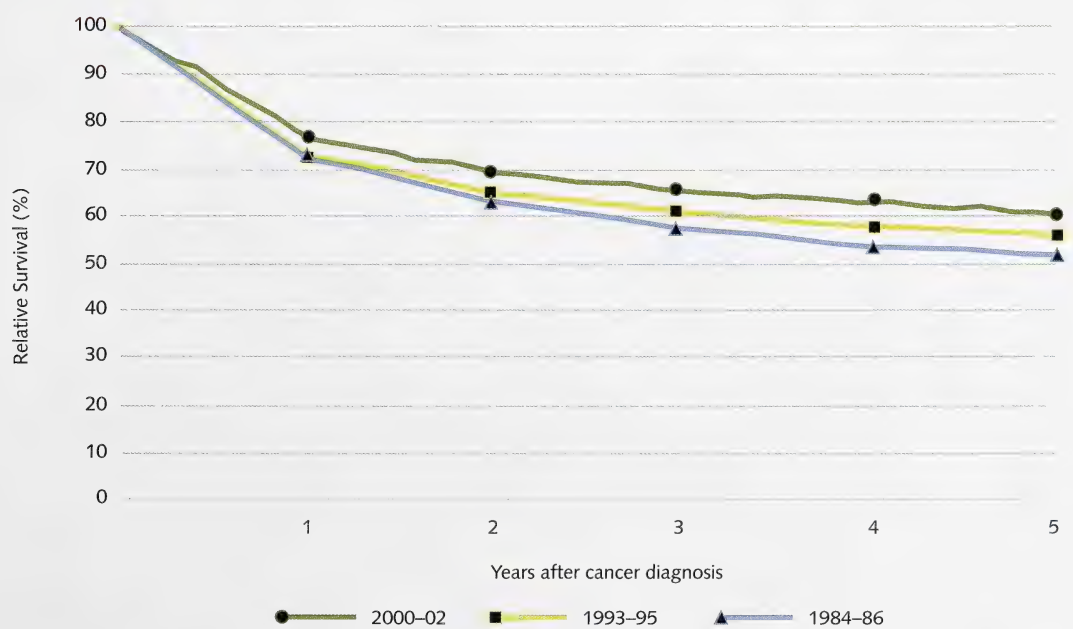
> To health professionals as it may allow some measure of the effectiveness of cancer control in the province.

Survival depends on several factors including:

> cancer site;
> **stage of the cancer** at diagnosis;
> type of cells affected;
> age at diagnosis;
> gender;
> presence of other negative health conditions; and,
> treatment.

Relative survival compares the survival of cancer patients with the survival of the general population with the same age and sex characteristics.

Figure 11: Relative Survival[13] Trends in Alberta for All Cancers[14]



13 Further details on the methodology can be obtained from the paper: Brenner H, Gefeller O." An alternative approach to monitoring cancer patient survival". Cancer 1996, 78, 2004–2010.

14 Please note: Figure 11 excludes non-melanoma skin cancers.

Figure 11 shows the five-year relative survival curves of Albertans diagnosed with cancer between 1984–86, 1993–95 and one for the prediction of survival for people diagnosed in 2000–02. Because five years of follow up data is not yet available for people diagnosed in this later time period, the curves were predicted using **period analysis**.[15]

Looking at Figure 11, we see that the predicted survival curve for those diagnosed in 2000–2002 is above the other curves. This indicates that the prognosis for this group is expected to be better than for those diagnosed in the earlier years. The closer a curve is to the top (100%) the nearer the survival is to that of the general population. The hope is for the curves to continue to go higher because this would indicate that survival rates are improving.

As previously mentioned, survival rates vary dramatically among sites; for example, survival rates for prostate and breast cancer are much higher than those for colorectal cancer. In turn, survival rates for colorectal cancer are better than the survival rates for lung cancer. As a note, the improvement in breast cancer survival is a result of early detection and advanced treatment.

Improved prognosis is expected for those diagnosed with cancer in 2000–2002 over those diagnosed in earlier years.

Prevalence

The prevalence of a disease is the number of people currently living with that disease. The number of people living with cancer adds up annually and cancer prevalence is an important facet of the cancer burden picture.

As of January 1, 2002, 79,300 Albertans were living with cancer. Each year since then, 12,000 Albertans have been diagnosed with cancer and roughly 5,000 have died, thus leaving approximately an additional 7,000 people living with cancer each year.

The issue of cancer prevalence has two critical aspects:

> The first is the good news story that, through early detection and improved treatments, more people are surviving these days (see previous section) and are in remission.

> As a consequence, however, of the improved survival, the chances of recurrence and further treatment many years after the initial diagnosis are increased. This affects the individual, their family and the health care system. The number of recurrences combined with an increase in cancer incidence, leads to a higher total burden of cancer on individuals and society. This is the second critical aspect of prevalence.

This burden has several consequences which we will briefly outline here. These effects, however, are not yet fully understood:

1) the emotional trauma resulting from a cancer diagnosis may lead survivors to seek supportive care during the initial experience and even after their physical recovery;
2) the emotional toll on families and loved ones;
3) the economic factor including treatment costs and loss of work productivity.

Thus, it can be seen that the repercussions of an increase in prevalence will affect Alberta significantly. This makes it imperative that continued efforts are made in the control of cancer in this province.

15 This methodology works backwards; for example, to estimate one-year survival probabilities, patients with a follow-up of one-year from diagnosis are used. For further explanation, see the glossary.

Regional Comparisons

Aging Population

As previously stated, age is an important part of the picture of cancer in any population. However, it is not the only factor as shown by the 35–64 age group where cancer is the leading cause of death.

Table 3: Alberta Population Distribution Over Time, Age Groups 35–64 and 65+

Regional Health Authority	1985 Population Total	1985 % of Total 35-64	1985 % of Total 65+	2005 Population Total	2005 % of Total 35-64	2005 % of Total 65+	2030[16] Population Total	2030[16] % of Total 35-64	2030[16] % of Total 65+
1	136,435	28.5	11.2	155,179	37.3	13.4	199,564	37.0	19.8
2	80,710	28.7	10.7	100,851	38.6	12.5	144,290	40.1	17.8
3	748,401	30.5	7.0	1,181,031	42.0	9.4	1,931,751	41.4	17.0
4	224,249	28.6	10.0	294,510	39.2	11.7	423,852	38.9	18.0
5	105,327	29.7	13.8	110,908	39.6	15.3	133,951	39.1	22.7
6	787,678	30.3	7.3	1,015,729	41.3	11.0	1,487,326	39.8	19.5
7	151,116	27.9	8.3	178,134	38.9	10.5	213,053	38.5	19.7
8	109,127	26.8	6.6	134,333	38.0	8.9	182,354	39.7	17.3
9	53,804	23.0	1.7	74,728	37.7	3.1	146,680	39.0	13.9
Total	2,396,847	29.6	8.0	3,245,403	40.7	10.5	4,862,821	40.2	18.2

Table 3 shows the Alberta population distribution, across regional health authorities, over time with emphasis on the age groups 35–64 and 65+. When we study the table we can see the following:

> Overall, the percentage for the 35–64 age group increased sharply between 1985 and 2005, but is expected to remain approximately the same in the future.

> On the other hand, the increase in the percentage of the population over age 65 has been quite gradual over the past twenty years, from 8.0% to 10.5%. In the future, a much steeper increase can be expected, from 10.5% in 2005 to 18.2% in 2030.

> The percentage aged 35-64 is similar across regions over time.

> However, the proportion aged 65+ shows significant variation across regional health authorities. As an example, in region 9, an estimated 3.1% of the population were over age 65 in 2005, compared to 8.9% in region 8. These figures indicate that, even if age-standardized cancer rates were identical in these regions, there would be a higher number of cancer cases expected in region 8 because, overall, residents in that area of the province are older and, in addition, the population is larger.

Cancer numbers are expected to rise in Alberta as the population increases and ages.

16 The numbers for 2030 are based on Alberta Health and Wellness population projections.

Cancer rates by region

Background information

Before the specific details of the cancer rates across regional health authorities are discussed it is important to note a major difference in the presentation of the information in this report compared to previous years:

> In earlier years, regional comparisons were presented in an "I-bar" graph format. This year, the visual representations are in the form of maps and bar charts which are more user-friendly graphic representations of the regional data.

> In particular, colour-coded maps are included in this section to illustrate whether the observed rates in each region are higher than, lower than or similar to the provincial average.

In order to produce these maps, each regional cancer rate was compared to the provincial rate. Statistically significant differences are indicated[17] by different colours using the T^2 test methodology:

> regions with rates similar to the provincial average have been designated by light green on the maps;

> low rates compared to the province are blue; and,

> regions with high rates compared to the province are yellow.

In general, most health regions have rates very similar to the provincial average.

What you will find on the following pages

In the subsequent pages, age-standardized incidence and mortality rates for all cancers, lung cancer, colorectal cancer, female breast cancer, and prostate cancer are presented for each of Alberta's nine health regions (Figures 12–21). These rates are three-year averages.[18]

Any observed differences in rates may be due to several factors such as:

> regional differences in diagnostic activity or cancer screening, and/or;

> differences in prevention efforts or in risk factors such as smoking and obesity rates.

In the future we will have an increased ability to investigate any differences between regions.

In the bar graphs (figures with the designate "a") the orange lines show 95% **confidence intervals**. These confidence intervals indicate how precise a rate estimate is: a wide confidence interval indicates less precision and occurs when a population size is smaller.

When the term "statistically significant" is used it indicates that the difference in rate was unlikely to have happened by chance. The ability to detect a significant difference from provincial rates depends on the population size of the health authority. Any statistically significant differences between a region and the provincial average should be viewed as preliminary, as a few "significant" results are expected when a large number of statistical tests are performed. Results that have been consistent over time are more reliable. For the following maps the blue or yellow colours indicate a statistically significant difference according to the T^2 test methodology.[17]

In addition, it should be noted on the figures that the scales on the Y-axes are not the same for each of the figures; the values vary greatly.

17 Further details on the methodology used to compare standardized regional rates can be found in the paper Carriere KC, Roos L. "Comparing Standardized Rates of Events". American Journal of Epidemiology, 140 (5) 472-82. 1994.

18 Three year averages are calculated by summing numbers (cases or deaths) for 2001, 2002, and 2003 and dividing by three. Three year averages were used because small numbers in some health regions can lead to large yearly fluctuations – averaging produces more reliable numbers.

Rates for all cancers

Age-standardized incidence rates for all cancers: compared to the province, incidence in females was low in Chinook Health Region, Peace Country Health, and Northern Lights Health Region; incidence in males was low in Palliser Health Region; and no regions had significantly higher rates than the province.

Figure 12a: Age-Standardized Incidence Rates for All Cancers by Regional Health Authority, 2001–2003

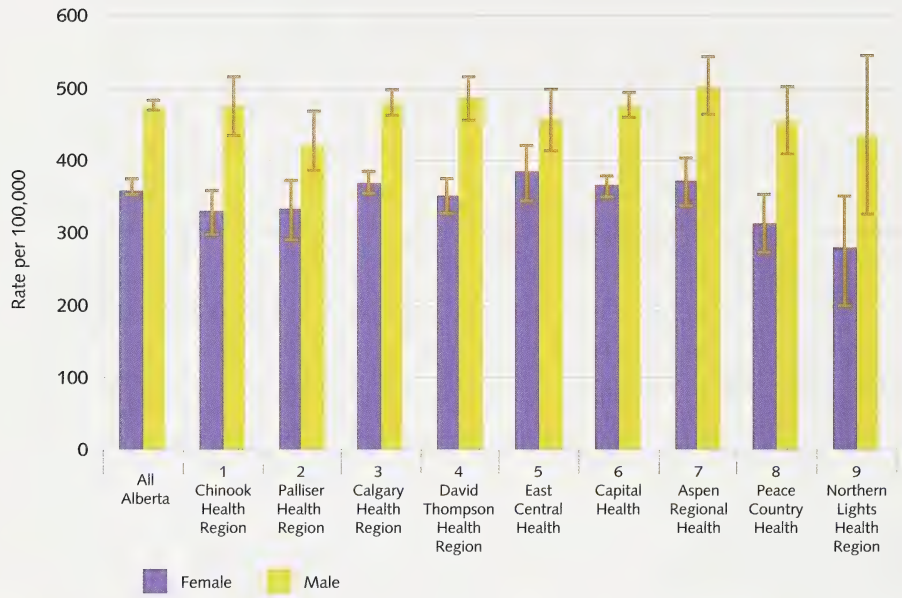


Figure 12-b. Female Age-Standardized Incidence Rates for All Cancers by Regional Health Authority—Comparison with Provincial Average, 2001–2003

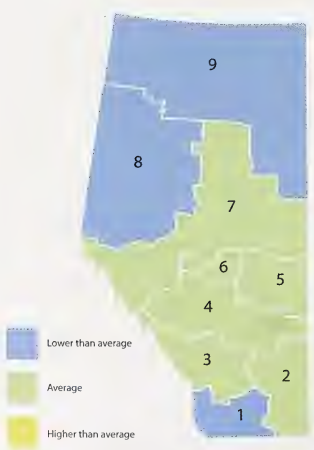


Figure 12-c. Male Age-Standardized Incidence Rates for All Cancers by Regional Health Authority—Comparison with Provincial Average, 2001–2003

Age-standardized mortality rates for all cancers: there were no significant differences in mortality rates across the province for any region.

Figure 13-a: Age-Standardized Mortality Rates for All Cancers by Regional Health Authority, 2001–2003

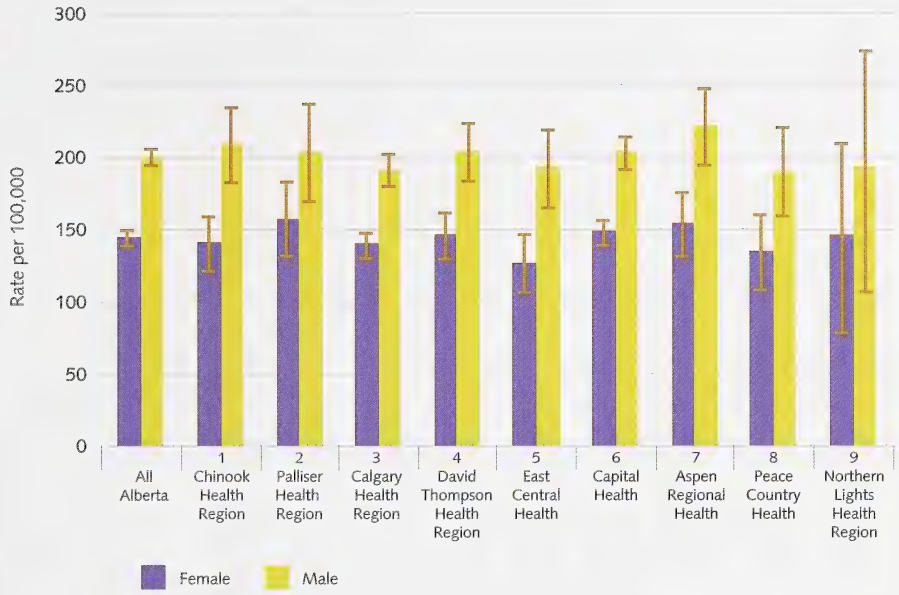
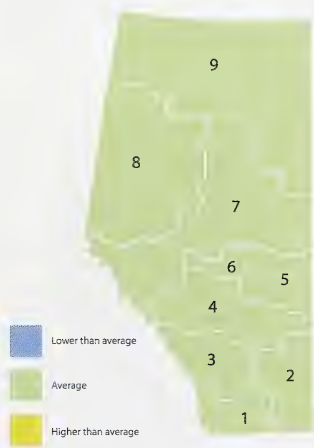


Figure 13-b. Female Age-Standardized Mortality Rates for All Cancers by Regional Health Authority—Comparison with Provincial Average, 2001–2003

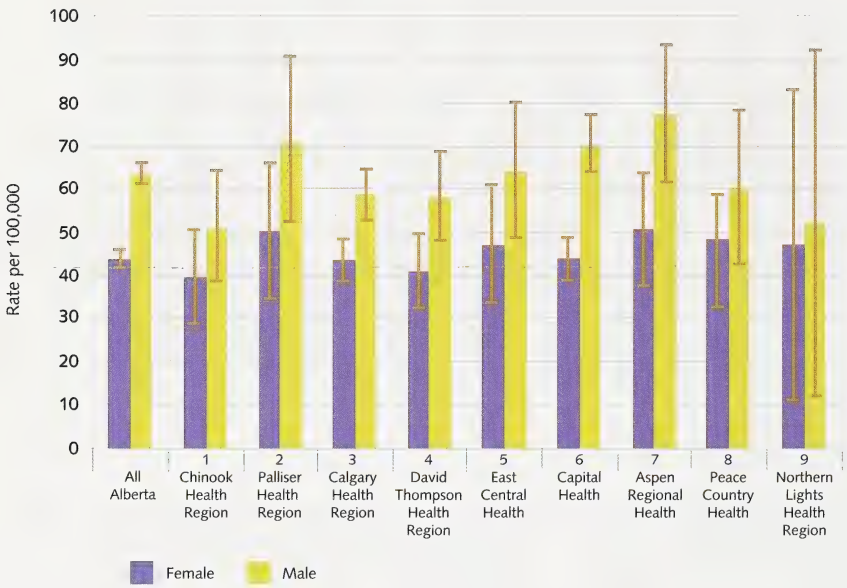
Figure 13-c. Male Age-Standardized Mortality Rates for All Cancers by Regional Health Authority—Comparison with Provincial Average, 2001–2003



Lung cancer rates

Age-standardized incidence rates for lung cancer: the apparently significant difference in incidence rate for males in Capital Health was marginal. No significant differences in rates were found in previous years. Because risk factors for lung cancer (i.e., tobacco use) occur decades before the diagnoses, this may reflect risk factor patterns that are no longer evident. We will continue to monitor the rates in Capital Health in order to determine whether this was an "isolated" difference.

Figure 14-a. Age-Standardized Incidence Rates for Lung Cancer by Regional Health Authority, 2001–2003



Tobacco use is related to at least 85% of all new lung cancer cases.

Figure 14-b. Female Age-Standardized Incidence Rates for Lung Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

Figure 14-c. Male Age-Standardized Incidence Rates for Lung Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

Age-standardized mortality rates for lung cancer: no significant differences were found across the province.

Figure 15-a. Age-Standardized Mortality Rates for Lung Cancer by Regional Health Authority, 2001–2003

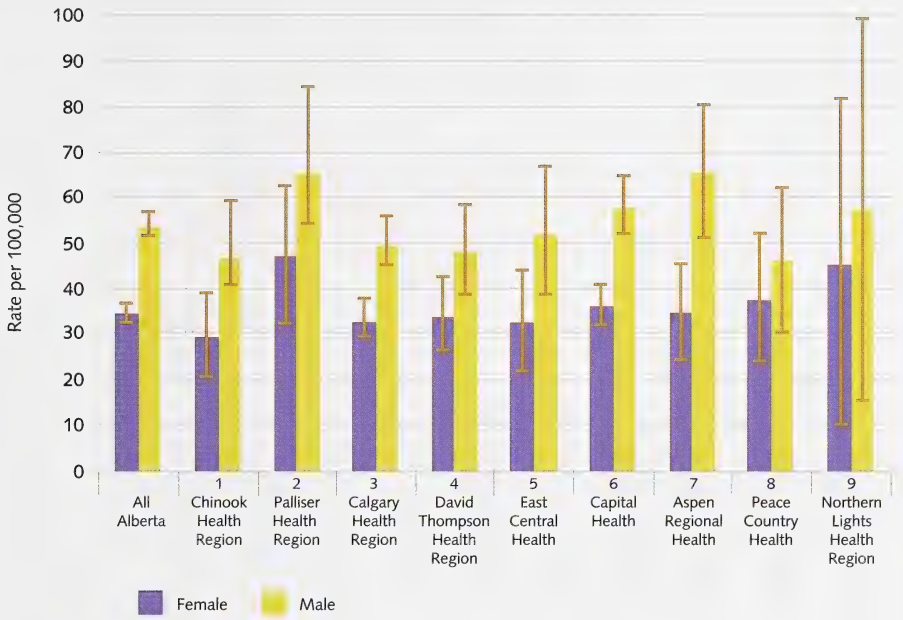


Figure 15-b. Female Age-Standardized Mortality Rates for Lung Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

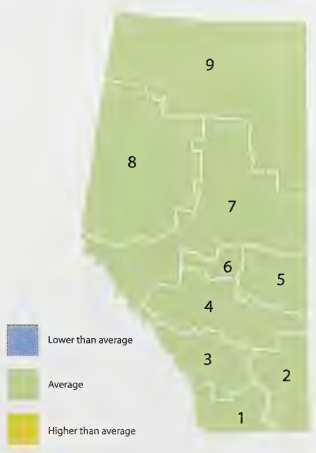


Figure 15-c. Male Age-Standardized Mortality Rates for Lung Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

Colorectal cancer rates

Age-standardized incidence rates for colorectal cancer: no significant differences were found across the province.

Figure 16-a. Age-Standardized Incidence Rates for Colorectal Cancer by Regional Health Authority, 2001–2003

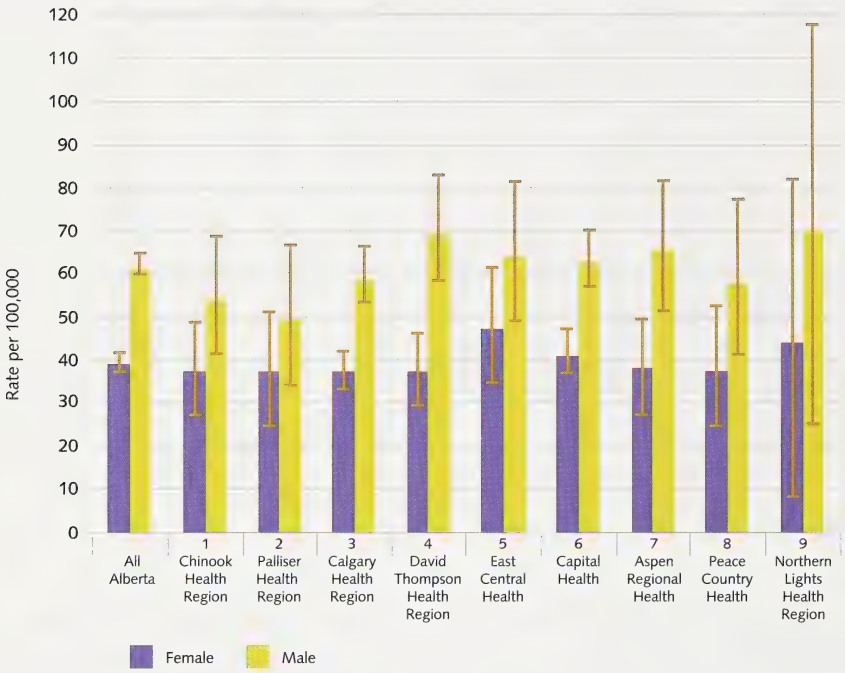


Figure 16-b. Female Age-Standardized Incidence Rates for Colorectal Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

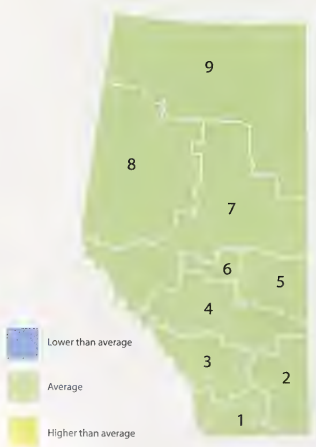
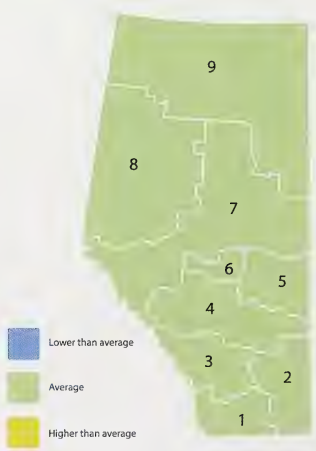


Figure 16-c. Male Age-Standardized Incidence Rates for Colorectal Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003



Age-standardized mortality rates for colorectal cancer: no significant differences were found across the province.

Figure 17-a. Age-Standardized Mortality Rates for Colorectal Cancer by Regional Health Authority, 2001–2003

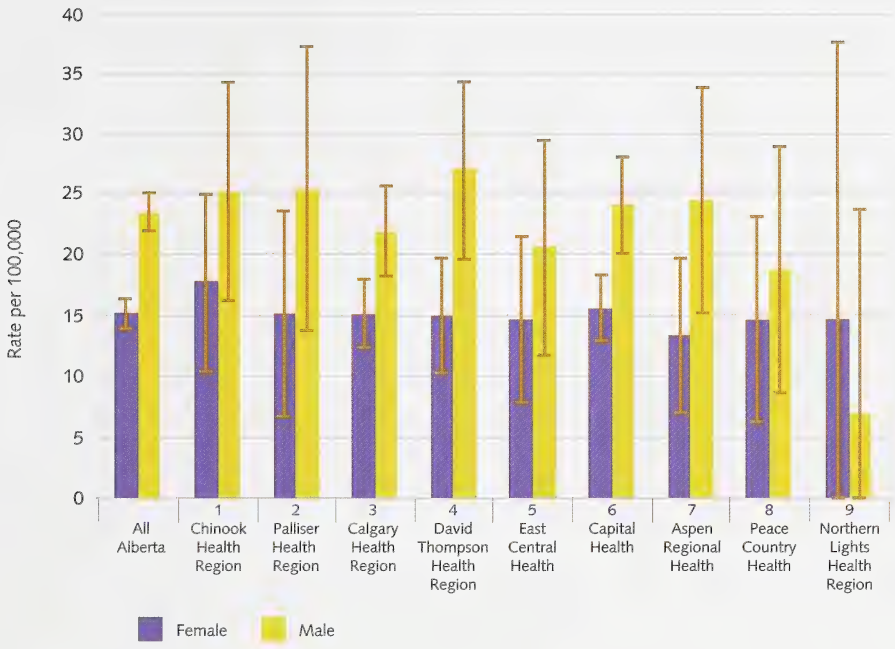


Figure 17-b. Female Age-Standardized Mortality Rates for Colorectal Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

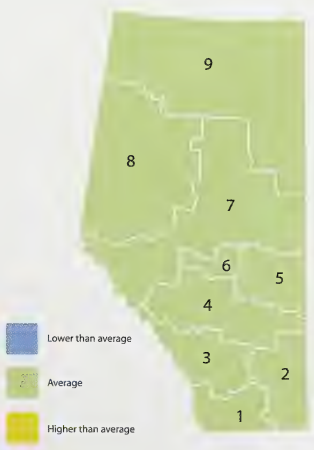
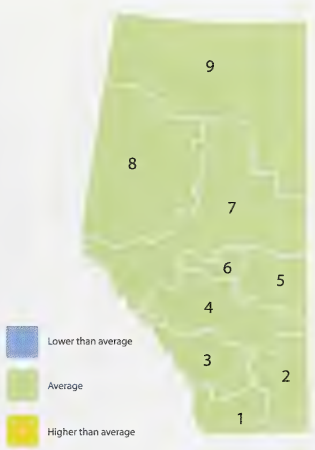


Figure 17-c. Male Age-Standardized Mortality Rates for Colorectal Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003



Female breast cancer rates

Age-standardized incidence rates for female breast cancer: rates were low compared to the province in Palliser Health Region, Peace Country Health and Northern Lights Health Region.

Figure 18-a. Female Age-Standardized Incidence Rates for Breast Cancer by Regional Health Authority, 2001–2003

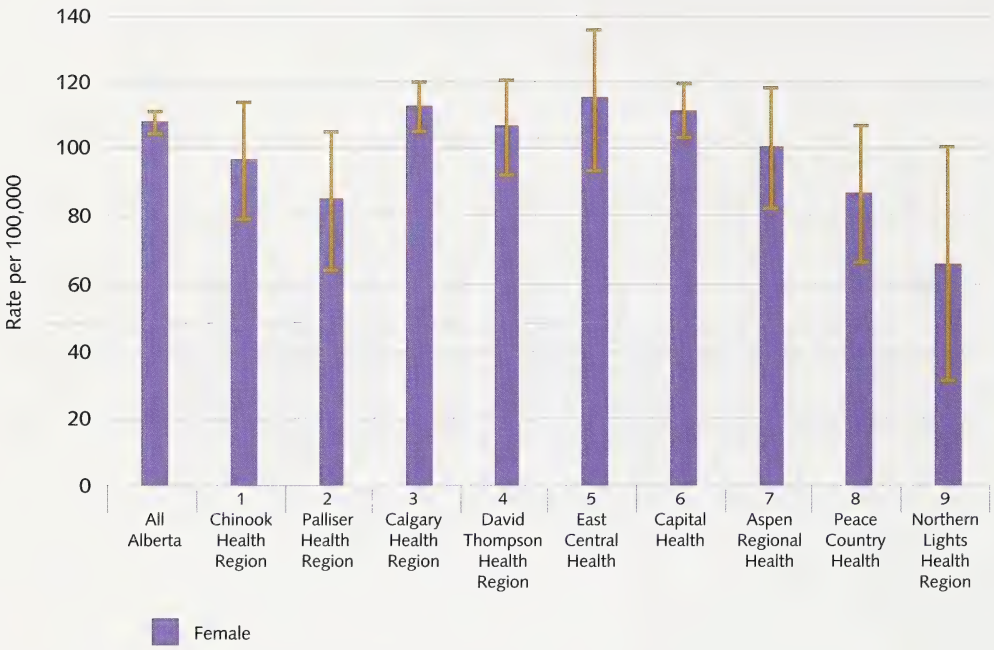
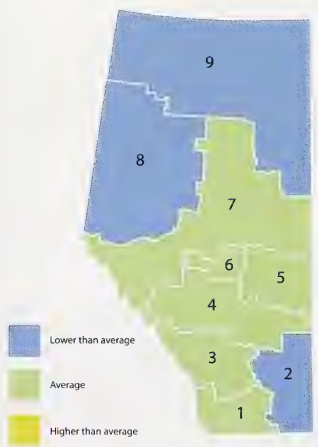


Figure 18-b. Female Age-Standardized Incidence Rates for Breast Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003



Age-standardized mortality rates for female breast cancer: no significant differences were found across the province.

Figure 19-a. Female Age-Standardized Mortality Rates for Breast Cancer by Regional Health Authority, 2001–2003

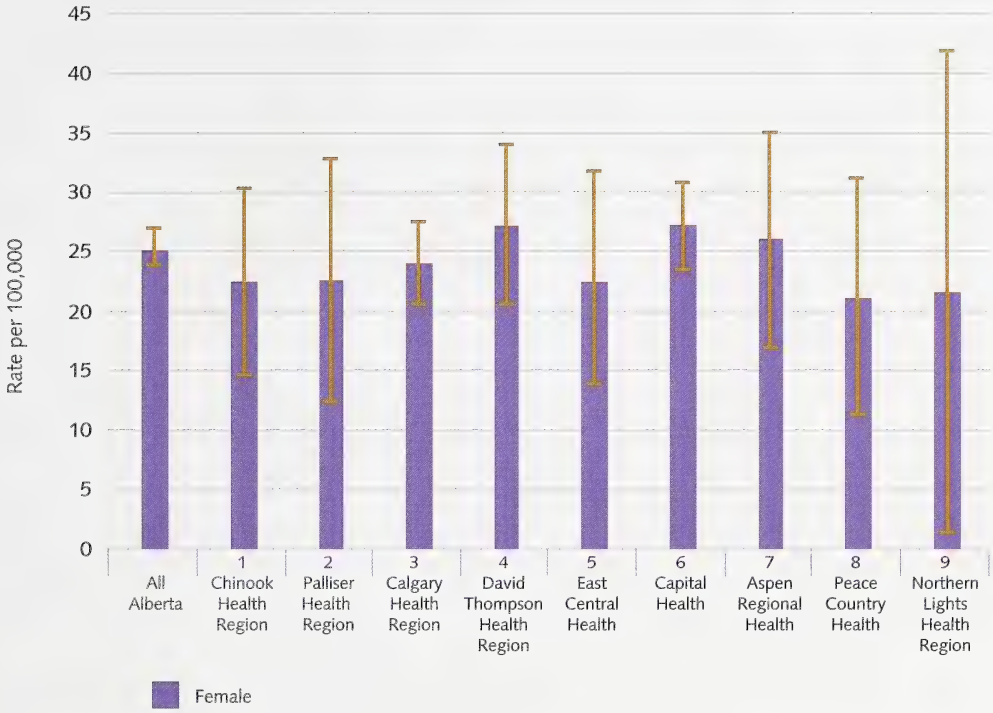


Figure 19-b. Female Age-Standardized Mortality Rates for Breast Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

Early diagnosis of breast cancer by screening mammography for women over 50 can reduce breast cancer deaths by 30%.

Prostate cancer rates

Age-standardized incidence rates for prostate cancer: rates were slightly lower than the provincial average in the Palliser Health Region.

Figure 20-a. Male Age-Standardized Incidence Rates for Prostate Cancer by Regional Health Authority, 2001–2003

Figure 20-b. Male Age-Standardized Incidence Rates for Prostate Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003

Age-standardized mortality rates for prostate cancer: no significant differences were found across the province.

Figure 21-a. Male Age-Standardized Mortality Rates for Prostate Cancer by Regional Health Authority, 2001–2003

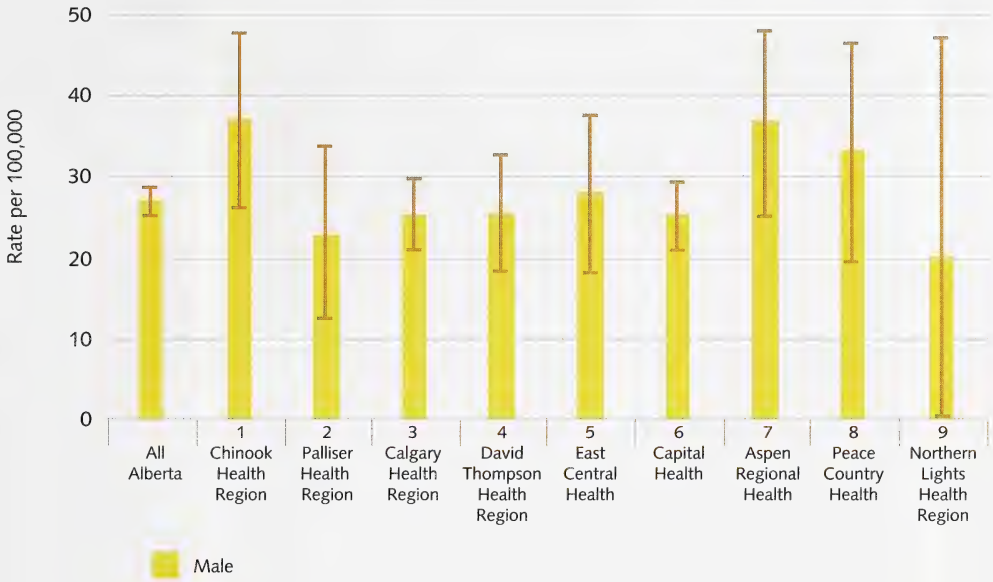
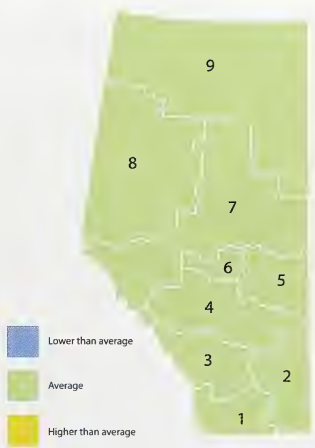


Figure 21-b. Male Age-Standardized Mortality Rates for Prostate Cancer by Regional Health Authority—Comparison with Provincial Average, 2001–2003



Glossary and Appendices

Glossary of Terms

Age-standardized rates:
Age-standardized rates are a weighted average of age-specific rates using a standard population distribution. They reflect the overall numbers that would be expected if the population of interest had an age structure identical to the standard population and are used to compare cancer rates among populations or identify trends over time.

Benign:
The term benign refers to a tumour that is not malignant (i.e., does not spread).

Carcinoma:
Carcinoma is a tumour that begins in the skin or in tissues that line or cover body organs.

Confidence intervals:
Confidence intervals indicate how precise a rate estimate is: a wide confidence interval indicates less precision and occurs when a population size is smaller.

Count:
Count refers to the number of cases or deaths in a given time period.

Incidence:
Incidence is the frequency of new cancer cases during a period of time: often the number of new invasive cases diagnosed in a year.

Invasive cancer:
Invasive cancer is cancer with the ability to spread beyond its point of origin.

Lymphatic system:
The lymphatic system is a system of vessels that carry lymph between lymph nodes located throughout the body.

Malignant:
The term malignant refers to a tumour that invades and destroys surrounding tissues, may spread elsewhere in the body, and is likely to recur after removal; a cancerous tumour.

Metastasis:
Metastasis refers to the spread of the original tumour to other parts of the body.

Mortality:
Mortality is the number of deaths due to cancer during a period of time.

Period analysis:
Period analysis is a method of predicting survival for patients for whom complete follow-up information is still unknown. To estimate one-year survival probabilities, patients with follow-up reaching one-year from diagnosis are used. The estimates of two-year survival probabilities are based on patients whose follow-up since diagnosis reaches between one and two years, and so on.

Potential years of life lost (PYLL):
PYLL is the number of years of life "lost" when a person dies prematurely from any cause; it is sometimes calculated by subtracting the age at which a person dies from the age 75. However, PYLL is not always calculated in exactly that way; for example, sometimes the age used is 65 instead of 75.

Prevalence:
This is the number of people alive today (at a specific point in time) with cancer. Prevalence can sometimes relate to a different diagnosis time period, for example fifteen year prevalence is the number of people alive today who have been diagnosed with cancer during the past fifteen years. In this document, we report complete prevalence.

Probability of developing cancer:
The probability of developing cancer is the risk of an individual developing cancer computed in a given age range, and is conditional on the person being cancer-free prior to the beginning of the age range.

PSA:
Prostate specific antigen (PSA) is a protein produced by prostate cells that, when elevated in the blood, indicates an abnormality in the prostate, possibly cancer. Because PSA levels may help indicate the presence of disease it is considered a tumour marker.

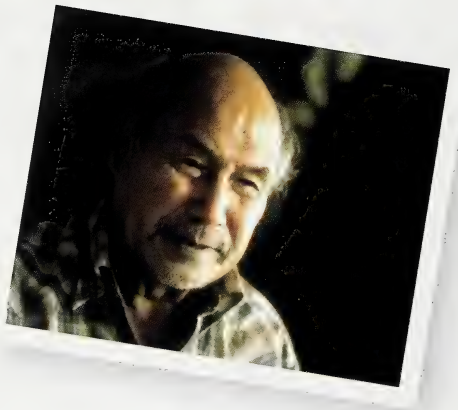
Rate:
A rate is the number of cases or deaths occurring in a specified population per year.

Relative survival:
Survival of cancer patients relative to that of the general population, assuming cancer was the only cause of death. Ratio of observed survival in a group of cancer patients relative to the expected survival of a similar group of people in the general public, matched by age and gender in Alberta.

Stage of cancer:
The stage of cancer refers to the extent of a cancer within the body. If the cancer has spread, the stage describes how far it has spread from the original site to other parts of the body.

Surveillance:
Surveillance is the ongoing systematic collection, analysis, and interpretation of health data.

Tumour:
A tumour is described as an abnormal mass of tissue that is not inflammatory, arises without obvious cause from cells of pre-existent tissue, and possesses no physiologic function.



Appendices

Cancer Incidence and Mortality in Alberta – Residents Diagnosed 2003

Data Sources:

The data for these tables and the *Annual Report of Cancer Statistics* come from the ACB's Alberta Cancer Registry, which records and maintains data on all new primary cancers and cancer deaths occurring in the province as mandated by the Cancer Programs Act of Alberta. The Alberta Cancer Registry captures all invasive and in situ cancers diagnosed amongst Albertans, as well as borderline conditions and central nervous system tumours that have been seen at an Alberta Cancer Board facility.

The Alberta Cancer Registry is continually updating the registry database as new information becomes available. The data in this report are based on the registry data as of November 3, 2005.

The Alberta Cancer Registry learns of new cancers from a variety of sources. Laboratories throughout the province send a copy of each pathology report with a diagnosis of cancer to the nearest Alberta Cancer Board facility—the reports are then made available to the Registry. Other items that also may be received are operative reports, discharge summaries, x-ray reports of scans, and autopsy reports.

Alberta Vital Statistics sends the Alberta Cancer Registry an electronic file with a list of all deaths occurring in Alberta, which is linked to the Registry to identify cancer patients who have died. Information on date, cause, and place of death are captured. Autopsy data, if different from the original diagnosis, are also entered. Registry staff may modify the death cause listed on the death certificate based on information available in the patient's medical record. Fewer than 1% of new cancer cases are registered through the death certificate only.

All data in this report relate only to those people who were resident in Alberta at the time of diagnosis or death.

Cancer Incidence and Mortality Counts and Rates

The figures presented in the body of this report gave the large picture of cancer. In this appendix, the tables provide more detailed information to accompany these figures.

In these tables the different terms should be noted:

- An incidence **count** indicates the number of new cases of cancer diagnosed during a given period and for a mortality count it is the number of deaths due to cancer.

- An incidence rate is the ratio of the incidence count to the population size from which the counts were derived (unadjusted for age) and for a mortality rate the ratio is that of the mortality count to the population size.

The first table contains data on new cancer cases and rates for 2003 by age group and site for males and females. The second table looks at information on cancer deaths and rates for 2003, again by age group and site for both sexes. In addition, there is a summary table for selected sites.

For further information on cancer incidence and mortality, an excellent resource is the Alberta Cancer Board's *Annual Report of Cancer Statistics.*

Incidence and Mortality Counts and Rates for Most Frequently Diagnosed Cancer Sites in Alberta, 2003

	Incidence						Mortality					
	Count			Rate			Count			Rate		
Cancer site	Male	Female	All	Male	Female	All	Male	Female	All	Male	Female	All
Prostate Gland	2,151		2,151	156.3			340		340	27.2		
Breast	13	1,794	1,807	0.9	106.9		3	420	423	0.2	24.5	
Lung	881	730	1,611	64.8	45.5	53.7	733	556	1,289	54.4	34.3	42.8
Colorectal	833	669	1,502	60.1	39.2	48.8	295	265	560	22.2	15.2	18.3
Thyroid Gland	54	224	278	3.4	14.0	8.7	4	11	15	0.3	0.6	0.5
Others Excluding Nonmelanoma Skin	2,698	2,524	5,222	188.0	152.5	168.0	1,309	1,256	2,565	95.1	73.7	83.1
All Sites Excluding Nonmelanoma Skin	6,630	5,941	12,571	473.5	358.2	408.5	2,684	2,508	5,192	199.3	148.4	169.0

Cancer Incidence Counts and Rates in Alberta 2003 by Site November 03, 2005

Cancer Site	0–14		15–34		35–64		65–74		75+		Total Count			ASIR per 100,000		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All	Male	Female	All
Head & Neck	0	0	6	0	144	47	47	28	39	30	236	105	341	15.3	6.2	10.6
Digestive Organs	0	0	7	5	537	328	413	256	455	459	1412	1048	2460	100.9	61.8	79.7
Stomach	0	0	0	1	65	37	44	14	50	41	159	93	252	11.2	5.3	8.0
Colorectal	0	0	5	4	302	209	244	159	282	297	833	669	1502	60.1	39.2	48.8
Pancreas	0	0	1	0	54	26	57	41	55	65	167	132	299	12.2	7.9	9.9
Other Digestive Organs	0	0	1	0	77	45	45	33	54	37	177	115	292	12.4	7.0	9.4
Respiratory & Intrathoracic Organs	0	1	2	3	280	269	339	226	299	243	920	742	1662	67.6	46.2	55.4
Lung	0	0	0	2	267	263	327	225	287	240	881	730	1611	64.8	45.5	53.7
Other Respiratory	0	1	2	1	13	6	12	1	12	3	39	12	51	2.8	0.7	1.7
Bones & Connective Tissue	4	4	12	5	15	13	14	3	8	9	53	34	87	3.7	2.0	2.8
Melanoma	0	0	17	31	122	94	45	25	35	38	219	188	407	14.5	11.6	12.8
Melanoma of Skin	0	0	12	31	108	90	41	22	32	32	193	175	368	12.8	10.8	11.6
Other Melanoma	0	0	5	0	14	4	4	3	3	6	26	13	39	1.7	0.8	1.3
Nonmelanoma Skin	3	6	45	63	1210	1015	790	453	932	865	2980	2402	5382	210.1	140.4	171.8
Peripheral Nerves & Autonomic Nervous System	1	0	0	1	0	0	0	0	0	0	1	1	2	0.1	0.1	0.1
Retroperitoneum & Peritoneum	0	0	3	0	4	18	5	13	1	6	13	37	50	0.9	2.4	1.7
Breast	0	0	0	30	5	1041	1	352	7	371	13	1794	1807	0.9	106.9	
Female Genital Organs		1		39		453		144		115		752			46.0	
Cervix Uteri		0		29		95		17		11		152			9.6	
Endometrium		0		3		220		80		52		355			21.8	
Ovary		1		4		104		36		32		177			10.6	
Other Female Genital Organs		0		3		34		11		20		68			4.0	
Male Genital Organs	1		45		838		859		513		2256			163.2		
Prostate Gland	0		0		792		854		505		2151			156.3		
Other Male Genital Organs	1		45		46		5		8		105			6.9		
Urinary Tract	4	3	3	2	162	67	134	53	117	76	420	201	621	30.4	12.0	20.5
Bladder	0	0	1	0	63	19	67	21	58	32	189	72	261	14.0	4.3	8.7
Other Urinary Organs & unspecified	4	3	2	2	99	48	67	32	59	44	231	129	360	16.4	7.7	11.8
Eye, Brain & Other CNS	13	5	12	11	67	37	21	19	19	15	132	87	219	8.7	5.5	7.1
Brain	10	4	10	11	64	35	20	18	19	14	123	82	205	8.1	5.2	6.6
Other Eyes and Brain	3	1	2	0	3	2	1	1	0	1	9	5	14	0.6	0.3	0.5
Thyroid & Other Endocrine Glands	3	0	6	38	35	150	9	27	7	12	60	227	287	3.8	14.2	9.0
Thyroid Gland	0	0	4	37	34	149	9	26	7	12	54	224	278	3.4	14.0	8.7
Other Endocrine Glands	3	0	2	1	1	1	0	1	0	0	6	3	9	0.4	0.2	0.3
Hematopoietic & Reticuloendothelial System	21	23	43	45	297	215	180	104	201	180	742	567	1309	52.2	34.4	42.5
Nonhodgkin Lymphoma	2	3	12	9	128	86	73	41	63	80	278	219	497	19.2	13.2	16.1
Hodgkin Lymphoma	1	3	14	24	17	14	2	3	0	4	34	48	82	2.2	3.2	2.7
Leukemia	18	17	16	8	94	59	45	21	69	45	242	150	392	17.0	8.9	12.6
Other Hematopoietic	0	0	1	4	58	56	60	39	69	51	188	150	338	13.8	9.1	11.2
Other & Ill-Defined and Unknown Primary	1	0	4	0	38	38	35	33	75	87	153	158	311	11.4	8.9	10.0
All Sites	51	43	205	273	3754	3785	2892	1736	2708	2506	9610	8343	17953	683.7	498.6	580.3
All Sites Excluding Nonmelanoma Skin	48	37	160	210	2544	2770	2102	1283	1776	1641	6630	5941	12571	473.5	358.2	408.5

Cancer Mortality Counts and Rates in Alberta 2003 by Site November 03, 2005

Cancer Site	0–14		15–34		35–64		65–74		75+		Total Count			ASMR per 100,000		
	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	All	Male	Female	All
Head & Neck	**0**	**0**	**2**	**1**	**46**	**15**	**24**	**10**	**24**	**18**	**96**	**44**	**140**	**6.5**	**2.7**	**4.4**
Digestive Organs	0	0	4	0	222	157	207	127	299	311	732	595	1327	53.9	34.1	43.0
Stomach	0	0	1	0	35	25	27	12	45	39	108	76	184	7.9	4.1	5.8
Colorectal	0	0	2	0	71	72	99	56	123	137	295	265	560	22.2	15.2	18.3
Pancreas	0	0	0	0	40	26	41	33	63	81	144	140	284	10.7	8.1	9.3
Other Digestive Organs	0	0	0	0	53	22	27	21	44	36	124	79	203	8.8	4.7	6.6
Respiratory & Intrathoracic Organs	0	0	0	0	186	187	279	163	293	212	758	562	1320	56.2	34.7	43.8
Lung	0	0	0	0	179	184	272	162	282	210	733	556	1289	54.4	34.3	42.8
Other Respiratory	0	0	0	0	7	3	7	1	11	2	25	6	31	1.8	0.4	1.0
Bones & Connective Tissue	0	0	1	2	6	7	3	2	7	8	17	19	36	1.2	1.1	1.1
Melanoma	0	0	0	0	11	9	12	4	14	8	37	21	58	2.8	1.3	1.9
Melanoma of Skin	0	0	0	0	11	8	12	3	14	5	37	16	53	2.8	1.0	1.8
Other Melanoma	0	0	0	0	0	1	0	1	0	3	0	5	5	0.0	0.3	0.2
Nonmelanoma Skin	0	0	0	0	3	0	4	1	12	2	19	3	22	1.5	0.2	0.7
Retroperitoneum & Peritoneum	0	1	1	0	4	10	4	11	1	8	10	30	40	0.7	1.9	1.3
Breast	0	0	0	4	1	196	1	77	1	143	3	420	423	0.2	24.5	
Female Genital Organs		0		7		96		60		72		235			14.3	
Cervix Uteri		0		5		22		9		4		40			2.5	
Endometrium		0		0		15		16		23		54			3.3	
Ovary		0		1		44		30		34		109			6.5	
Other Female Genital Organs		0		1		15		5		11		32			1.9	
Male Genital Organs	0		0		39		95		215		349			27.8		
Prostate Gland	0		0		34		92		214		340			27.2		
Other Male Genital Organs	0		0		5		3		1		9			0.6		
Urinary Tract	0	0	1	2	38	18	61	27	63	47	163	94	257	12.3	5.5	8.5
Bladder	0	0	0	1	13	4	34	8	38	26	85	39	124	6.6	2.2	4.2
Other Urinary Organs & unspecified	0	0	1	1	25	14	27	19	25	21	78	55	133	5.7	3.3	4.4
Eye, Brain & Other CNS	3	2	4	1	56	31	20	15	16	16	99	65	164	6.6	4.1	5.3
Brain	3	2	4	1	54	30	20	12	16	15	97	60	157	6.5	3.7	5.0
Other Eyes and Brain	0	0	0	0	2	1	0	3	0	1	2	5	7	0.1	0.3	0.2
Thyroid & Other Endocrine Glands	0	2	1	0	0	2	0	3	4	7	5	14	19	0.4	0.8	0.6
Thyroid Gland	0	0	0	0	0	1	0	3	4	7	4	11	15	0.3	0.6	0.5
Other Endocrine Glands	0	2	1	0	0	1	0	0	0	0	1	3	4	0.1	0.2	0.1
Hematopoietic & Reticuloendothelial Systems	2	5	7	4	76	44	66	62	118	147	269	262	531	19.8	15.1	17.2
Nonhodgkin Lymphoma	0	0	1	1	35	17	21	21	39	54	96	93	189	6.9	5.3	6.0
Hodgkin Lymphoma	0	0	1	0	5	0	1	2	1	4	8	6	14	0.5	0.4	0.4
Leukemia	2	5	4	3	21	18	23	20	43	52	93	98	191	6.9	5.7	6.2
Other Hematopoietic	0	0	1	0	15	9	21	19	35	37	72	65	137	5.5	3.7	4.5
Other & Ill-Defined Sites	0	0	0	0	1	0	0	1	1	2	2	3	5	0.2	0.2	0.2
Unknown Primary	0	0	3	1	33	32	37	30	71	81	144	144	288	10.7	8.2	9.3
All Sites	5	10	24	22	722	804	813	593	1139	1082	2703	2511	5214	200.8	148.6	169.7
All Sites Excluding Nonmelanoma Skin	5	10	24	22	719	804	809	592	1127	1080	2684	2508	5192	199.3	148.4	169.0

About the Cancer Board and the Alberta Cancer Foundation

The Alberta Cancer Board is the Provincial Health Authority operating cancer facilities and programs in Alberta. Services include cancer prevention, early detection, diagnosis, treatment, research and education. Also included in this role is coordinating, in cooperation with others, the planning, development and delivery of provincial cancer initiatives.

As part of this mandate, five divisions carry out the business of the Alberta Cancer Board in addition to the Provincial Administration and Operations office located in Edmonton:

The Cross Cancer Institute (CCI) in Edmonton and the Tom Baker Cancer Centre (TBCC) in Calgary are the two patient care facilities responsible for treating patients in northern and southern Alberta.

Medical Affairs and Community Oncology (MACO) was created to ensure that the same quality of cancer services is available to all Albertans regardless of where they live, and is particularly focused on the delivery of cancer care to rural centres.

The Division of Population Health & Information (PHI) is focused on the front-end of the cancer spectrum to determine and have an impact on the environmental, biological and behavioural factors that lead to the development of cancer. The Division of PHI encompasses the following departments in addition to a Provincial Operations unit.

> The Cancer Prevention Program provides expertise, resources, linkages, training and evidence-based programming to health regions and other stakeholders in the area of cancer and chronic disease prevention.

> Screening Programs coordinate provincial screening programs on behalf of the ACB, including the Alberta Cervical Cancer Screening Program and the Alberta Breast Cancer Screening Program. Full implementation for both programs is expected later in 2006.

> Population Health Research Unit conducts epidemiologic research into population-based trends in cancer incidence, morbidity and mortality, the causes of cancer, prevention strategies and the early detection of cancer.

> The Surveillance Group provides ongoing surveillance and monitoring of cancer trends in Alberta by analyzing data collected by the Alberta Cancer Registry. A number of basic surveillance measures, such as incidence, mortality, survival, and probabilities of developing or dying of cancer, are generated and published.

> The Alberta Cancer Registry manages a population-based registry of cancer cases in the province.

> The Integrated Cancer Care Network (ICCN) provides a repository of clinical information on patients treated at an ACB facility, and supports care, treatment, and research

> The Information Security and Privacy Office (ISPO) works to ensure the Alberta Cancer Board complies with provincial privacy legislation and maintains industry standards for information security.

> Information Systems improves productivity by minimizing system failures, builds system redundancy, and manages hardware and software infrastructures for the ACB.

Finally, the Research Division coordinates the basic, applied, clinical and population-based research that is performed in the facilities and divisions of the Alberta Cancer Board.

The Alberta Cancer Foundation (ACF) is a registered charity, established under the Cancer Programs Act to raise and receive funds on behalf of the Alberta Cancer Board (ACB). ACF funding supports cancer research, patient education and financial assistance programs, equipment and technology acquisition, and cancer care programs in all 17 ACB cancer centres in Alberta.

The Alberta Cancer Board is currently redesigning the Web site: www.cancerboard.ab.ca, to better serve the health information needs of Albertans. The enhanced site is scheduled to launch later in 2006. A Cancer Statistics section will be added to the ACB Web site as part of the over-all redesign, in an effort to provide users of this report with access to more detailed data for specific cancer sites.

In previous years, Cancer in Alberta: A Regional Picture reported data for nine cancer sites; however, the 2006 report was streamlined to provide more detailed information on the cancer sites that most frequently affect Alberta's population. A new Cancer Statistics section on the redesigned ACB Web site will provide a synopsis of data for a variety of cancer sites, including those not present in detail in this year's report.

A *Cancer Statistics* section on the Web will help to illustrate the burden of cancer in Alberta using graphs and tables based on data compiled by the Alberta Cancer Registry. For each cancer site listed below, you will soon find information on incidence, mortality and survival rates as well as regional cancer statistics and trends.

- Lung
- Colorectal
- Breast
- Prostate
- Cervical
- Melanoma
- Non-Hodgkin's Lymphoma
- Pancreatic
- Endometrium
- Kidney
- Ovarian

Watch for cancer statistics on the Alberta Cancer Board Web site later this year!

Resources for Health Professionals

Alberta Cancer Board Resources:

In addition to *Cancer in Alberta: A Regional Picture* report, the Alberta Cancer Board's Division of Population Health & information produces a number of educational resources, train-the-trainer materials and reports for health professionals.

Cancer prevention resources

Prevention resources from the Alberta Cancer Board's Division of Population Health & Information can be downloaded from the ACB Web site at: http://www.cancerboard.ab.ca/cancer/cancer_online.html. To order hard copies of current resources, an order form can be downloaded in Adobe PDF format, printed and faxed or mailed to the ACB. The order form is located at the bottom of the web page (listed above) under the "Mail order" section.

Cervical cancer screening resources

Cervical cancer screening resources for health professionals and women are available on the Alberta Cervical Cancer Screening Program (ACCSP) Web site at: http://www.cancerboard.ab.ca/accsp/resources.html.

Breast cancer screening resources

Breast health and screening resources for health professionals and women are listed (and some are available to download) on the Screen Test Web site at: http://www.cancerboard.ab.ca/screentest/resources.htm.

The Alberta Breast Cancer Screening Program (ABCSP) is a province-wide initiative that will be fully implemented later in 2006. At that time, resources for health professionals and women will be available on the ABCSP site at: http://www.cancerboard.ab.ca/abcsp/.

Cancer surveillance and statistics

In addition to *Cancer in Alberta: A Regional Picture* report, the ACB's Division of Population Health & Information also publishes the *Alberta Cancer Registry: Annual Report of Cancer Statistics*. This report is available to download on the ACB Web site at: http://www.cancerboard.ab.ca/cancer/cancer_online.html.

Other Resources on Cancer Statistics:

Canadian Cancer Statistics 2006, Canadian Cancer Society/National Cancer Institute of Canada/Statistics Canada/Provincial and Territorial Cancer Registries/ Health Canada

Five-year Relative Survival from Prostate, Breast, Colorectal, and Lung Cancer, Ellison LF, L. Gibbons L, and the Canadian Cancer Survival Analysis Group, Health Reports (Statistics Canada Catalogue 82-003), 2001, Vol. 13, No. 1: 23–34

Leading Cancers—Changes in Five-year Relative Survival, Ellison LF, L. Gibbons L, Health Reports (Statistics Canada Catalogue 82-003), 2004, Vol. 15, No. 2

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